

October 12, 2001



Fermilab

BEAMS DIVISION/CRYOGENIC SYSTEMS
ENGINEERING and DESIGN GROUP

Minutes from Wednesday, Oct 10th Muon Collider/Cryogenics Meeting

Place: Outfield Conference Room, MW9

Attendees: Steve Geer, Milorad Popovic, Dan Kaplan, Alex Martinez, Barry Norris, Christine Darve, Arkadiy Klebaner

Minutes Prepared by: Barry Norris

This meeting was called by Milorad to begin a series of discussions between the experimenters and BD/Cryogenic personnel.

- 1) Discussing the need for engineers like Del Allspach to be present opened the meeting. Milorad and Dan voiced opinions and ideas about having Del involved and invited to these meeting in the future.

Barry stated that he wanted to have a pre-safety review in 3 weeks. Work would be presented to Del and Jim Kilmer of PPD to understand if safety concerns would be met. Barry didn't want to cause a conflict of interest later on for Del.

NOTE: Following this meeting, Barry received a call from PPD concerning Del's involvement in this project. It was agreed that he would come aboard, probably in a consultant role, and assist BD/Cryo. Other engineers will be used for the Safety Review later on.

- 2) A discussion ensued concerning specifications for hydrogen that BD/Cryo must satisfy.
 - Kaplan has stated that as more absorbers are added the density of all of them must be +/- 5% of nominal where nominal seems to be arbitrarily chosen by Cryo folks.

- Lots of concerns voiced about running below the Minimum operating pressure point specified by “Guidelines for the Design, Fabrication, testing, Installation and Operation of LH2 Targets.” This issue requires much more discussion and becomes a fundamental issue in the entire project.
 - Discussions to clarify the meanings of Maximum Operating Pressure vs. Maximum Allowable Working Pressure to place. There was some confusion about what was meant by MAWP. This is an issue that must be well understood by all parties so that this design can move forward with the lab safety standards in mind.
 - Significant discussion resulted from experimenters desire to operate at 1.2 atmosphere. How to establish a pressure difference and other issues, such as possible sub-atmospheric conditions need to be resolved. We only touched on these subjects at this meeting.
 - There was some discussion on how the absorber and heat exchanger would ultimately be connected. Is there a single package or two? Design must take into account that the absorber will be “housed” inside of the SC Solenoid presently at Lab G.
 - Dan Kaplan spoke of the ultimate 20K load required. Cryogenics has been told previously to consider 91 Watts and 130 Watt scenarios (@ LH2 temps). Dan introduced a possibility of as much as 1500 Watts. Cryo must satisfy both a 20K and 5K load that may force the use of two separate refrigerators in the final design.
- 3) Steve Geer emphasized the need to maintain a 2-3 year focus on this design – and no more than that. Although all “visions” should be listened too, anything that slows this project down by as much as 6 months is considered too long in Steve’s mind and words.
- 4) We decided it was important to meet again soon with Dan, Mary Anne, and Ed Black present. 11 am Oct. 12 was chosen.